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| 10/574,092 | 12/01/2006 | Nello Nigro | 9378/206 (IP 23567) | 9789 |
| 757 7590 10/28/2008 BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610 | | | | |
| EXAMINER | | | | |
| SUNG, GERALD LUTHER | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 3741 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,092

Applicant(s)

NIGRO, NELLO

Examiner

GERALD L. SUNG

Art Unit

3741

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viteri USPN 6,622,470 in view of Ooka USPN 5,724,805.

1. Regarding claim 1, Viteri discloses a semi-closed combined cycle GT engine where methane, and compressed oxygen and flue gas are combusted in a combustor 30 and expanded in a turbine. The flue gas is placed in heat exchange with an HRSG to drive a steam turbine and generator 60. Viteri shows the compression of gaseous oxygen 150 in the compressor. Viteri et al. is silent to the use of coal bed methane and the storage of the flue gas in an underground storage.
2. Ooka et al. teach a gas turbine system comprising closed system between fuel and combustion gas using underground coal layer comprising a methane and oxygen

combustor 12 where exhaust gas from the condenser 15 is re-circulated back to the compressor 11 and ultimately into the combustor 12, where the combustion of the exhaust gas, coal bed methane, and oxygen are used to drive a turbine 13, supplying hot flue gas produced in the turbine 13 to an HRSG 21 to generate steam where the steam is used to drive a steam turbine 22, and supplying a part of the flue gas stream from the condenser 15 to the combustor 12 via the compressor 11, and supplying the remainder of the flue gas stream to a gas compression module 4 for storage in an underground coal bed 7. The power plant of Ooka et al. further functions by supplying a coal bed methane 6 and oxygen from the air separator 3, supplying a hot flue gas stream produced in the gas turbine 13 to generate steam by way of heat exchange with water supplied to the steam generator 21, and supplying steam from the steam generator 21 to a steam turbine 22 to drive the turbine 22. The operations of modes A. and B. are not done at the same time.

3. One of ordinary skill in the art at the time of the invention would have found it obvious to modify the Viteri system to include the use of a coal bed taught in Ooka as fuel source and a waste storage because it is an economically viable and abundantly available source of methane and provides the ability to store the combustion products thereby reducing carbon dioxide emissions into the atmosphere.

4. Regarding claim 2, both Viteri and Ooka disclose the use of oxygen as the oxidizer.

5. Regarding claim 3, the flue gas stream supplied to the combustor is predominantly CO₂.

6. Regarding claim 4, Ooka teaches the storage of the CO₂ in an underground coal bed.
7. Regarding claim 5, Viteri discloses the storage of CO₂ in liquid form (paragraph 40 detailed description).
8. Regarding claim 6, Ooka et al. teach the storage in an underground coal bed seam.
9. Regarding claim 7, the underground storage provides the methane to power the GT engine.
10. Regarding claim 8, Viteri, as previously modified by Ooka et al., disclose the use of a condenser 15, to condense water out of the flue gas (Ooka Figure 1).
11. Regarding claim 10, Viteri discloses compressing the flue gas stream to a first pressure and supplying one part of the compressed flue gas stream to the combustor.
12. Regarding claim 11, both Viteri and Ooka disclose the compression of a CO₂ containing stream for storage where Ooka teaches the storage of the CO₂ in an underground storage region and Viteri discloses that the CO₂ may be in liquid form for storage.
13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Viteri et al. USPN 6,622,470 B2 in view of Ooka et al. CA 2,465,384 in further view of Golomb et al. USPN 5,724,805.
14. Regarding claim 12 Viteri, as previously modified by Ooka, disclose all elements except for the step of supplying air from the air compressor to produce oxygen.

15. Golomb et al. teach the use of "a compressor arranged to pressurize the air prior to separation of oxygen..." (column 2 lines 62-63).
16. One of ordinary skill in the art at the time of the invention would have found it obvious to modify the combination system of Viteri and Ooka to include the step, as taught by Golomb, of supplying air from the air compressor in order to increase the amount of air being separated in the oxygen generator thereby increasing the amount of oxygen available For combustion in the power plant and increasing the efficiency of the power plant.

Response to Arguments

17. Regarding the Applicant's arguments that it Viteri teaches away from combining Figure 1 of Viteri and Figure 2 of Viteri, the Examiner believes there appears to be a miscommunication on what is actually being combined. In the previous office action, the Figure 1 from Viteri was being combined with the Figure 1 of Ooka, where the Figure 1 of Ooka was relabeled as Figure 2 and referred to in the office action as figure 2. In light of the arguments presented, the current rejection relies on the schematic of figure 2 of Viteri in view of Figure 1 of Ooka.
18. Applicant's arguments filed 11 August 2008 have been fully considered but they are not persuasive because they address a combination which was not present in the office action.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERALD L. SUNG whose telephone number is (571)270-3765. The examiner can normally be reached on M-F 9am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cuff can be reached on (571) 272-6778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gerald Sung
Patent Examiner
GS
23 October 2008

/Michael Cuff/
Supervisory Patent Examiner, Art Unit 3741